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Polarization of near-field light induced with a plasmonic nanoantenna

Kharintsev S., Fishman A., Kazarian S., Salakhov M.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2015 American Physical Society. Evaluation and control of a polarization state of optical near fields are of tremendous advantage for locally probing intrinsic molecular orientations of highly anisotropic molecules with a plasmonic (metallic) nanoantenna. In this paper, we report on a physical mechanism of reading a dipole orientation at the apex of a rough cone-shaped gold tip illuminated with radially and azimuthally polarized light. In-plane and out-of-plane arrangement of nonlinear optical chromophores embedded into a glassy polymer is probed with tip-enhanced Raman scattering.

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